vastly weaker than notions of necessity as "without even possible exceptions" (e.g., try 2 + 2 = 4). It loses the modal notion of necessity entirely, and, in so doing, reveals yet again that the Bayesian models cannot stand on their own. This is at times a contentious issue, especially from various kinds of strict empiricists, but nothing offered to date accounts for this modality of necessity.

A second problem concerns what kinds of phenomena are taken to contradict Piaget by Tourmou, for example:

"Even animals, like rats [Blaisdell, Sawa, Leising, & Waldmann, 2006], are able to build causal models of their environment from the observation of events and their frequency." As is all too often the case, Piaget is discussing mastery of causality and probability, while these supposed disconfirmations of Piaget are based on much more primitive abilities (e.g., frequencies, associative strengths, etc.) that Piaget, to my knowledge, never denied.

And for one more example:

"First, are children attentive to causal links and frequencies earlier in development than Piaget claims?" Piaget's claims about mastery have little to do with what Piaget would accept about children's "attentiveness." In fact, if children did not attend to such relevances and precursory phenomena, they could never develop any kind of Piagetian mastery.

In summary, I applaud Tourmou's analysis of contemporary probabilistic approaches and their similarities and differences from Piaget's models. We need more such comparative analyses, across multiple kinds of frameworks. I also, however, wish to suggest that Piaget's attempt at a third way emergence model of cognition and representation constitutes an undervalued difference from probabilistic models that is of fundamental importance.

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1 There are myriad instances of claims of refutations of Piaget based on false understandings of what Piaget wrote, and, more recently especially, a growing number of discussions pointing this out. For one such recent discussion, see Allen and Bickhard [2013].

Yet when developmental science took up the question of personality it did so with a lexicon not entirely shared with personality theorists. For example, when Damon’s [1983] Social and Personality Development came out, one looked in vain for the word “trait” in the subject index. The third chapter did include a small section on temperament; the sixth chapter focused on individuality and self-development, but with only a slight nod to cognitive style and individual differences in ego control and resilience. The concluding eighth chapter took up individuation and autonomy, adolescent self-understanding and the development of personality identity. For Damon [1983] these were the developmental constructs that formed the basis of personality. The remaining chapters of his book focused on social relationships in infancy, childhood and adolescence and mechanisms of socialization in adolescent-parent relationships, topics of doubtful relevance to the five-factor theorist who did not believe that traits are amenable to environmental influence [McCrae & Costa, 2008].

Clearly, the two fields pursued the question of personality development in very different ways and at different levels of generality. Over time, the enthusiasm for Loewinger’s ego developmental approach to personality would diminish (along with stage theories generally) and the developmental constructs of interest to Damon would be treated hardly at all by personality psychology unless as characteristic adaptations of broader dispositional traits of the five-factor model. Certainly, developmental and personality psychology appeared to run in different circles, but then so did many other fields of psychology. As Cacioppo [2007] tells it, centrifugal forces splintered psychology into balkanized divisions and increasingly narrow specialties, although more recently centrifugal forces are favoring crosscutting perspectives and deeper integration across psychological disciplines. Indeed, there is something about the rhythm of science that pulls for integration, comprehensive theory and common ground.

It is in this context that one can appreciate the immense contribution of Dan McAdams’s [2015] new book The Art and Science of Personality Development. The magisterial reach of this book is a wonder. McAdams writes with learned assurance about an astonishing array of topics, spinning a tight weave through seemingly disparate literatures that includes personality neuroscience, evolution, genetics, emotions, biology and culture, among others. He wades into parenting and socialization, theory of mind and self-determination, motivation and autonomy, morality and values, religion and politics. There is a deep dive into personality psychology, of course, but McAdams can also teach developmental psychologists a thing or two. Indeed, there is no better account of the apparent developmental grounding of the five-factor traits. The fifth chapter (“The Age 5–7 Shift”) is particularly strong in recounting the pathways to personal agency in child development, and, by recovering the 5–7 shift, reminds developmental psychology of one of its most important but sadly neglected findings.

Of course, the movement towards integrative perspectives on personality and development has been building for some time. For one thing, any construct investigated in adulthood will eventually require developmental specification, and this includes the dispositional constructs of personality. For another, the increasing popula-

larity of general system theories of development [Bates & Smith, 2004; Lerner, Lerner, Almerigi, & Theokas, 2006; Sameroff, 2010] and personality [e.g., Fajkowska, 2015; Mayer, 2015] should make possible a common vocabulary to describe and explain trajectories of personality formation. That said, only Dan McAdams could have written this book. His interest in pulling together personality and development goes back at least to Loewinger’s theory [McAdams, 1998], and his account of the “new Big Five” set principles for integrating the science of personality, the mission of which is “to provide an integrative framework for understanding the whole person,” [McAdams & Pals, 2006, p. 204], a framework that necessarily includes the development of the whole person.

But the formidable integrative science revealed in this book is also leavened with charming autobiographical details that endear the author to his readers. For some reason, McAdams loves the Cubs and the Bears (choices this Pirates and Steelers fan can only deplore). Second grade was his breakout year. He once played a Halloween trick on his brother and his class reunion yielded several interesting observations about his classmates. McAdams also pauses to render highly informative case studies of personality development: George W. Bush as extreme extravert, the unmitigated agency and narcissism of Steve Jobs. We learn about Mary Karr’s wrestle with self-regulation, Martin Luther’s struggle with identity and Hillary Clinton’s achievement goals, and how values (religious and otherwise) shaped Mother Theresa’s and Andrei Sakharov’s sense of agency. Barack Obama’s and Gandhi’s life stories illustrate the power of narrative to explain themes of identity and generativity in personality development. Portraits of personality maturation include Saint Augustine, Karen Horney, Jane Fonda and Jay Z – an eclectic mix indeed. This combination of biographical and autobiographical details brings the wide-ranging scholarship on such easy display within accessible reach of just about anyone drawn to this topic.

**Notable Themes**

Several notable themes run through the book. One theme is that personality is an evolutionary achievement; it is a person’s “characteristic variation on the evolved design for human nature” (p. 4). Moreover, for McAdams, “It makes consummate evolutionary sense that a ususal species like ours would evolve to take careful note of variations in personality” (p. 39). The evolutionary design includes a gazoo of shared intentionality, the possibility of reciprocal altruism, the need to belong, form attachments, and manage the requirements and threats to group solidarity. Personality helps sort this out. We need to notice who is kind, dutiful, hardworking, conscientious, and agreeable, among many other characteristics, in order to make sociality work for evolutionary success. “Personality begins with the different reputations that human actors achieve as they strive to get along and get ahead in social groups” [McAdams, 2015, p. 41]. The human species has evolved to notice these differences.

A second theme is that characteristic variation on the evolved general design for human nature, that is, one’s personality, is an “artful experiment.” Indeed, the title of the book is no mere rhetorical flourish, McAdams really does view the creation and expression of personality as a creative performance in the social arena. The art of personality development involves, among other things, “the expression and refinement of a uniquely personal and recognizable style of emotional performance” (p. 44).
There is artistry in how variations on the evolved design are expressed in individual lives as a distinctive and recognizable brand. Whereas the science of personality development reveals the generalizable abstractions of research, the art of personality development shows how these are manifest in the lives of particular persons. The science is nomothetic; the art is ideographic.

Hence, the developing child comes to learn the rudiments of acting and calibrates performance to the requirements of audience. Temperament is the performance of emotion. "For the cognitively gifted human species... everyday social life is not so different from what happens on the theatrical stage" [McAdams, 2015, p. 44]. Later in development, the young actor will want to write the script as well as perform it. The art of personality takes an authorial turn by young adulthood. Here one begins to draft identity-creating narratives replete with plots, settings, characters, dramatic arc and denouement, narratives that will be subjected to continuous updating and revision throughout the life course. "You are a novel," McAdams writes. "You are an extended prose narrative featuring a main character" [McAdams, 2015, p. 240, emphasis in original]; and it is a developmental imperative to keep the story going; indeed, one's sense of identity depends upon it. McAdams's narrative approach to personality and the importance it draws to the "stories we live by" has transformed our understanding of lifespan development and the way we investigate the vagaries of the psychological self, and it is given a thoughtful, persuasive explication in this book.

A third theme is that personality is the creative enactment of a biopsychosocial organism. Broad dispositional traits are assembled out of inborn biological tendencies associated with infant temperament. Temperament is the young child's "characteristic acting style" [McAdams, 2015, p. 48], its mood, tempo, reactivity, alertness, all of which reflects "inborn differences in physiological makeup" (p. 48). Certainly, the biological foundation of individual differences and personality neuroscience are trending [e.g., DeYoung, 2010], and although the link between biological temperament and dispositional traits is oft observed [Rothbart & Bates, 2006], McAdams's account of this development is endlessly informative.

For example, the trait dimension extraversion that will emerge over the course of childhood is prefigured by the infant's positive emotionality, and positive emotionality is driven by two brain processes. The Behavioral Approach System underwrites "wanting" and "seeking", while the opioid system is linked to the experience of joy and pleasure that comes with achieving rewards. The trait dimension neuroticism is prefigured by infant negative emotionality, which is also underwritten by two biological processes: the fight-flight-fear system that signals fear and the behavioral inhibition system that signals anxiety. Chapter 3 takes up self-regulation, effortful control and the development of conscience. The emergence of these capacities is linked to the executive attention network of the prefrontal cortex and anterior cingulate gyrus, out of which emerges the trait dimensions of agreeableness (motivated by empathy) and conscientiousness (motivated by guilt). The linkage of brain, biology, emotions and traits in early life is not the end of it. Mean-level change in the display of certain personality traits, for example, increases in conscientiousness and agreeableness and declines in neuroticism, is later linked to universal biological changes that accompany the maturation of the prefrontal cortex.

A fourth theme is that personality thickens across the life course. The self is progressively enveloped by overlapping layers of psychological artistry: the self is an actor in early life, an agent after the 5-7 shift, and an author by emerging adulthood. As McAdams puts it, "personality is a developing configuration of psychological individuality that expresses a person's recognizable uniqueness, wherein life stories are layered over salient goals and values, which are layered over dispositional traits" [2015, p. 8].

So infant temperament canalizes into recognizable traits by early childhood. These dispose the social actor to perform emotions and actions in characteristic ways. By middle childhood, the social actor takes ownership of his or her experience, infuses it with intention, will and purpose, and aligns it with future goals pursued with self-determination. The social actor becomes a motivated agent who is animated by projects, plans and values. By adolescence, the motivations of the social agent move in the direction of constructing life stories to make sense of experience and personal history. We become autobiographical authors who derive personal meaning from the social ecology of everyday life, and who attempt to make sense of the events, scenes, plots and characters that swirl about us by fitting it to a narrative structure, to a story, and in this way come to understand ourselves. With narrative identity, we become the story we tell. "You are the entire novel itself, and you are the novelist; you live the story as you write it" [McAdams, 2015, p. 240]. And some of the time we might have cause to wonder how much of our story is fiction, how much is true, and whether it matters.

I have not scratched the surface of the things I admire about this engaging book. Other highlights include his treatment of self-determination theory, self-esteem and narcissism, the psychological mechanisms that reinforce preexisting personality traits, and the developmental story told about goal pursuit and becoming a motivated agent. There is a meditative, almost poignant quality to the chapters on generative lives and end-time reflection. At last someone dismisses the individualism-collectivism distinction as caricature. McAdams does not pretend that every important idea was hatched recently within the present generation, but reaches back into the history of psychology to recover foundational ideas. Need for achievement and the power motive are themes; so is his respectful treatment of Freud and Mead, Erving Goffman, Piaget and Kohlberg, among others. This is as fine an introduction to psychology as one will find, and it is written far better than most; indeed, it has no equal.

For the Next Edition

That said there are several matters that might be revisited as this book goes to its inevitable second edition. Let me begin with a cavil concerning the emergence of the I- and Me-self in early life. McAdams has the I-self emerging "toward the end of the second year of human life" (p. 47), citing William James. But this is not correct. The sense of independent existence and agency, the so-called "existential" I-self, the sense that I exist independently, and I can cause things to happen in the world, is in place in the first months of life; with the Me-self (the "categorical self" or self-concept) evident certainly by the second birthday, but possibly as early as 15 months [Lewis & Brooks-Gunn, 1979].

A more substantive issue concerns the core metaphor of the book, which is that personality thickens with layers over the life course. That personality takes on layers is a familiar notion with a long history. It can be traced, for example, to Freud's "centaur model" of personality with its tripartite division of personality into id, ego, and

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superoego [Erikson, 1950; Guentip, 1971; Lapsley & Stey, 2012]. Freud’s model, too, begins with biological-instinctual processes that get layered over with rational and then moralistic ones. The metaphor of the mythological centaur likens the dynamic interplay among these provinces as a rational head affixed to the body of a beast. McAdams uses artistic metaphors to capture the tripartite division of personality into layers but the challenge is the same, which is how to account for the dynamic interplay among the layers.

Sometimes, the three selves of personality development— the self as actor, agent and author— do not seem well acquainted, or else do not work well together. The structure of personality as revealed by the traits of the social actor seems to have little to do with the motivational agenda of the self as agent, or the narrative identity of the self as author. McAdams is adamant that “you do not need to know a person as a motivational agent to make a reasonable prediction about what he or she will do as a social actor” (p. 144). This is fair enough, as far as it goes. After all, not a lot of thought goes into the early displays of temperament, and it seems odd to say that one makes a decision to be neurotic or open to experience. Yet, it also seems reasonable to expect more dynamic interaction between personality structure, motivational agency and narrative identity, or expect more integration among these moments of development than the metaphor of thickening or layering suggests. The self as actor and as agent and author are not, after all, three different people.

One might wonder, for example, whether development at one level has effects on other levels. Is it reasonable for trait dispositions to change (as it apparently does over adulthood), yet have little or no implication for the self as agent or author? Can we expect changes in the structure of personality to have no effect on self-agency or self-authorship? The direction of effect might go the other way, but McAdams gives little reason to think so. Chapter 4 takes note of mean-level increases in agreeableness and conscientiousness in adulthood, and decreases in neuroticism, for example, but these are linked solely to biological maturation or to changes in social roles. There is no indication that changes in agent plans, motivation, goals, values, purpose, or in narrative identity might play a role in influencing dispositional change, although one would think that these characteristic adaptations would at least be bound up with changes in social roles which then drive changes in dispositional traits. And it still seems odd that knowing a person’s motivational agenda is of little use in predicting behavior even as a social actor.

McAdams argues that broad dispositional traits like agreeableness or extraversion are “local” traits that influence how we interact with others on a daily basis, but that goals, plans and projects are more general features that influence future ends. “Your traits are about how you act today; your goals are about what you want for tomorrow” (p. 189, emphasis in original). Moreover, these goals do get absorbed into personality but at the second level. He writes “Your most important and psychologically absorbing goals in life are likely to become incorporated into your personality, filling in a second layer of psychological individuality” (p. 189).

But why only at the second layer? Surely goals and plans for the future have some regulative effect on how we regulate local, daily behavior. Surely the ideal self we aim to be or ought to be has some bearing on the present decisions and behavior of the real self. To insulate dispositional traits from the influence of everything else that goes on in one’s life, at other layers of personality functioning, seems at odd with data reported elsewhere in the book that traits are not a main effect, that epigenetics trumps genetics, that life experiences and forms of socialization matter. It seems at variance with extant formulations that traits are organizational constructs that operate dynamically in transaction with the environment [Caspi & Shiner, 2006], or with evidence that the relationship between traits and social influence is bidirectional [Van den Akker, DeKovic, Ascher, & Prinzie, 2014]. According to DeYoung [2015], to view traits only through the lens of genetic predispositions is to confuse genotype with phenotype, and ignores mounting evidence that the behavioral manifestation of traits is subject to eliciting features of situations. Indeed, as Gottlieb [2007, p. 1] put it, “There is reciprocity of influence with and between layers of an organism’s developmental manifold (genetic activity, neural activity, behavior and the physical, social and cultural influences of the external environment) and the ubiquity of gene-environment interactions in the realization of all phenotypes.”

In their meta-analysis (also cited by McAdams), Roberts, Walton and Viechtbauer [2006] concluded that mean-level change in personality across the life course was most pronounced in young adulthood, and that this may be a period of personality trait moratorium just as it is a period of an identity moratorium, a time of exploration not just in terms of identity commitments but in dispositional qualities as well. “It is during young adulthood,” they wrote, “when people begin to confront the realities of becoming an adult and when we find significant gains in personality traits” [Roberts et al., 2006, p. 20].

But this sounds like the motivational agenda of the self as agent—goals, plans and motives—colluding with traits in the service of identity work. Confronting the realism of one’s motivational agenda and constructing a narrative identity is surely the dominant psychological challenge of the third decade, and there is no reason why changes in dispositional qualities should be insulated from it. To group life experiences into layers is certainly a powerful, useful heuristic for understanding personality development unless it codifies into essentialist categories things that are really dynamic and interactive features of the “developmental manifold.”

Another issue concerns the almost total silence on the social cognitive mechanisms of personality development, or even an acknowledgement that there has been considerable research activity around these constructs in personality science. Social cognition does not appear in the subject index. The cognitive-affective processing system theory of personality, or the CAPS model [Cervone & Shoda, 1999; Mischel & Shoda, 1995, 2008], is also absent from the book. The CAPS model purports to be an approach that unifies conceptions of dispositions and processing dynamics in a way that takes situations into account. Does the CAPS model align with three moments of personality development envisioned by McAdams? CAPS is a prominent theoretical approach to personality and not taking it up seems like a missed opportunity. Relatedly, Cervone [1991] argued that the science of personality divides into two disciplines on the basis of the units thought to constitute personality: traits or social cognitive constructs, such as schemas, scripts, expectancies, and so on. Perhaps the distinction is too Manichean for modern personality theory because trait dispositions and social cognition interpenetrate in complex ways, but do they interpenetrate at all?

McAdams’s silence on this makes it hard to tell.

In the account of the Big Five [McAdams & Pals, 2006], social cognition is one of several characteristic adaptations remedied to a level of personality that resembles the self as agent. There is presently no consensus about what constitutes a characteristic adaptation [DeYoung, 2015], and a second edition might want to take
What McAdams does have to say about morality and personality is of interest. In his view, "Morality is primary for our eusocial species because without morality we cannot be a eusocial species" (p. 206, emphasis in original). A shared understanding of what is right and wrong is as crucial as food or water. Our capacity for morality may have evolved from social instincts. Haidt's moral foundation theory is discussed extensively as are moral emotions. Learning "what is good" is a matter of socialization. He writes, "To become socialized in human groups is to become moralized - to learn the rules and norms of the group to learn how to control yourself so that you do not violate the rules and thereby disrupt the well-being of the group or members in it, and to learn how to be nice, play fair, help others, share resources, respect authority and demonstrate loyalty to the group" [McAdams, 2015, p. 208].

This is an interesting story although some developmentalists would wish a more nuanced account of moral socialization. Learning the rules of the group for the sake of solidarity, harmony and efficiency is certainly a central component of socialization, as Durkheim [1925] noted, but not all rules are the same and not all socialization is moral socialization. Rather, according to domain theory, social rules are bound into domains as a result of children having social experiences of a certain kind [Turiel, 2010]. As a result, children distinguish moral, conventional and personal rules, and from an early age [Nucci, 1981; Smetana, Jambon & Ball, 2014; Turiel, 2008]. That McAdams conflates the domains here will attract notice.

McAdams is also attracted to the social psychological view that mind perception is the core of moral judgment [e.g., Gray, Young, & Waytz, 2012]. On this view making a moral judgment involves typecasting characters as agent (who has intentions and bears responsibility) or patient (who experiences suffering) in imagined dyadic scenarios. Moral judging requires evaluating the quality of agent intentionality, and this will hinge on whether one's theory of mind is up to the task. The dyadic typecasting feature of the theory is of genuine interest, and there is little doubt that the quality of mind perception should influence the adequacy of moral judgment.

Of course, it has been known for a long time that social cognitive development (in the form of perspective taking) underwrites moral judgment, and principled moral reasoners have been urged for decades to assume the imaginative "original position" to sort out justice claims, although linking moral judgment to another form of social cognition (theory of mind) and other forms of imaginative thought experiments (typecasting) are useful extensions. McAdams might be interested in a recent paper that links theory of mind to domain theory and parental socialization to flesh out this section [Lagattuta, Nucci, & Bosacki, 2010].

Finally, McAdams's absorbing account of the unmitigated agency of the narcissist suggests another possible integrative linkage with a developmental theme [Hill & Roberts, 2011]. He notes, for example, that for the narcissist agency is unmitigated by communal concerns, that achieving goals is not nearly as important for the narcissist as having achievement recognized, honored and applauded by a flawing audience, and this to enhance self-esteem, even "if their fantasies involve an imagined audience" (p. 166). The unmitigated narcissist also pursues an assimilationist strategy by deploying a "reality distortion field" (p. 166) when it comes to social perception. He continues, "In unmitigated agency, physical and social facts must be bent to accommodate the agent's plans" (p. 166).

McAdams has the unmitigated agency of Steve Jobs in mind in this account of narcissism, but it accords with core themes of the venerable adolescent egocentrism...
theory (Elkind, 1967; Lapsley, 1993) and recent attempts to push this theory to account for narcissism observed in adolescence [Hill & Lapsley, 2010; Lapsley & Stey, 2011]. Young adolescents also construct imaginary audiences and adopt an assimilationist strategy with social perception. On one account, the tendency to construct imaginary audiences and also personal fables (typically of subjective omnipotence, invulnerability, and personal uniqueness) is bound up with the ego developmental process of separation-individuation [Lapsley & Stey, 2011]. These ideations constitute a narcissistic restitution strategy to maintain self-esteem while adolescents attempt to reconstruct a new compromise between the demands of agency and communion. For my money, individuation is the heartbeat of adolescent development, and construction of personal fables and imaginary audiences are both common and normal forms of adolescent narcissism that spring from normative developmental challenges of individuation and ego development. Perhaps there is an opportunity here for McAdams to weave a developmental component to the story of unmitigated agency and narcissism.

Conclusion

So this returns us to where the essay began on the topic of personality and ego development. If developmental and personal psychology is no longer in tune with the habit of talking to one another, this remarkable book restores the basis for conversation. It identifies a problematic shared in common, dusts off the lexicon, and points the way to mutually informing literatures. I am confident that this book will drive the conversation on selfhood, personality and development for many years to come, and, as we learn in this book, keeping the narrative going is the most important thing.

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Personality and Its Development


Teenage Brains: Think Different?

Editors
B.J. Casey
B.E. Kosofsky
P.G. Bhide

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